

Metro-North Railroad

Siemens Dual Mode Locomotives

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The NGEC will provide national leadership in standardization, acquisition, financing and management of passenger rail equipment.

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About MNR

Founded in 1983 when the MTA assumed control of Conrail commuter operations in the states of New York and Connecticut, Metro-North's roots can be traced back to the New York & Harlem Railroad, which began in 1832 as a horse-car line in lower Manhattan.

Metro-North consists of three lines originating from Grand Central Terminal in New York City: the Hudson Line which terminates in Poughkeepsie, N.Y., the Harlem Line which terminates in Wassaic N.Y., and the New Haven Line which terminates in New Haven, CT. There are also three (3) branch lines in Connecticut: the Danbury, Waterbury, and New Canaan Branches.



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About MNR

MTA is largest US commuter rail system.

Metro-North's operating territory is comprised of 385 route miles containing 122 passenger stations. There are approximately 550 scheduled revenue trains on weekdays. With an average weekday ridership of 311k in 2019, it is the third busiest commuter railroad in North America in terms of annual ridership, behind the Long Island Railroad and NJ Transit.



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Project Background

- The Dual Mode Locomotive procurement is intended to replace GE P32AC-DM locomotives nearing or exceeding their projected 25-year lifespan.



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Project Background

- The purchase, an order for 19 locomotives with exercise of an initial option for 8 more, is funded by a Federal Transit Administration grant, and includes options for up to 144 additional locomotives for Metro-North, the Long Island Railroad, Connecticut Department of Transportation and the New York State Department of Transportation.
- In December 2020, the Metropolitan Transportation Authority voted to approve a \$334.9 million contract for Siemens to build 27 dual-mode locomotives for the Metro-North Railroad.
- The existing P32 Genesis Locomotives, in service since the 1990s are currently operating in Push-Pull service powering the Metro-North Shoreliner coach fleet. The current P32s operate with both Diesel and Third Rail Electric power.



Project Description

- The new Dual Mode Locomotives are designed for use throughout the railroad, including possible future service expansion to Penn Station via Amtrak's Hellgate Line and /or Empire Service Corridor. The procurement includes design documentation, testing, manuals, mock-ups, training, software, licenses, spares, special tools, fixtures, test equipment and all other required deliverables and services, complete with warranties and guarantees.
- The Locomotives are capable of continuous operation over the Railroad propelling an eight (8) car consist of future Multilevel Coaches while supplying Head End Power to the cars.



Primary Changes to PRIIA Language

- Based on MNR's and LIRR's Dual Mode Locomotive experience
- Reliability is critical due to limited NYC portals
- MTA specific specification sections that address issues of prior vehicles
- Large existing MTA investments in existing diagnostic, tracking, inventory systems = Specific interface requirements
- Grand Central Terminal (Park Avenue Viaduct/Tunnel) has unique weight, clearance and emergency evacuation requirements



Key Features & Benefits

Largest Tier 4 Locomotive Fleet: with more than 80 locomotives accepted.

Lowest Noise Emissions in Class:
50% quieter than existing locomotive.

Trucks: Completed the 125 MPH high speed qualification on the North East Corridor

Maintenance Friendly: Modular component arrangement for good accessibility and ease of inspection, test, diagnosis, repair and exchange, reducing downtime and maintenance man hours.

Ergonomic Engineer's Cab.

Monitoring and Diagnostics: Advanced monitoring and diagnostics for maintenance and service reducing downtime.



Dual Mode Operation: 3rd Rail Contact Shoe will allow the Charger to draw electrical power wherever the third rail is available, thereby reducing emissions for the surrounding communities.

Weight Optimized Design: reduces track wear and infrastructure maintenance.



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Key Features - General

- **Lighter Weight:** Strict weight limit on the Park Avenue Viaduct into Grand Central Terminal
- **Service Proven Design:** Existing base Diesel design with limited modifications
- **Spare Parts Availability:** With 30-year spare part commitments in place with other agencies, Metro-North will have benefit from long-term spare parts availability



Key Features - General

Reliable Energy-Efficient LED Lighting:
in the Engineer's Cab
and Exterior Lighting



Emergency Egress:
through the Assistant
Engineer's windshield

Optimized Cab Safety:
AAR-S-580 Compliant
Cab Safety Cage



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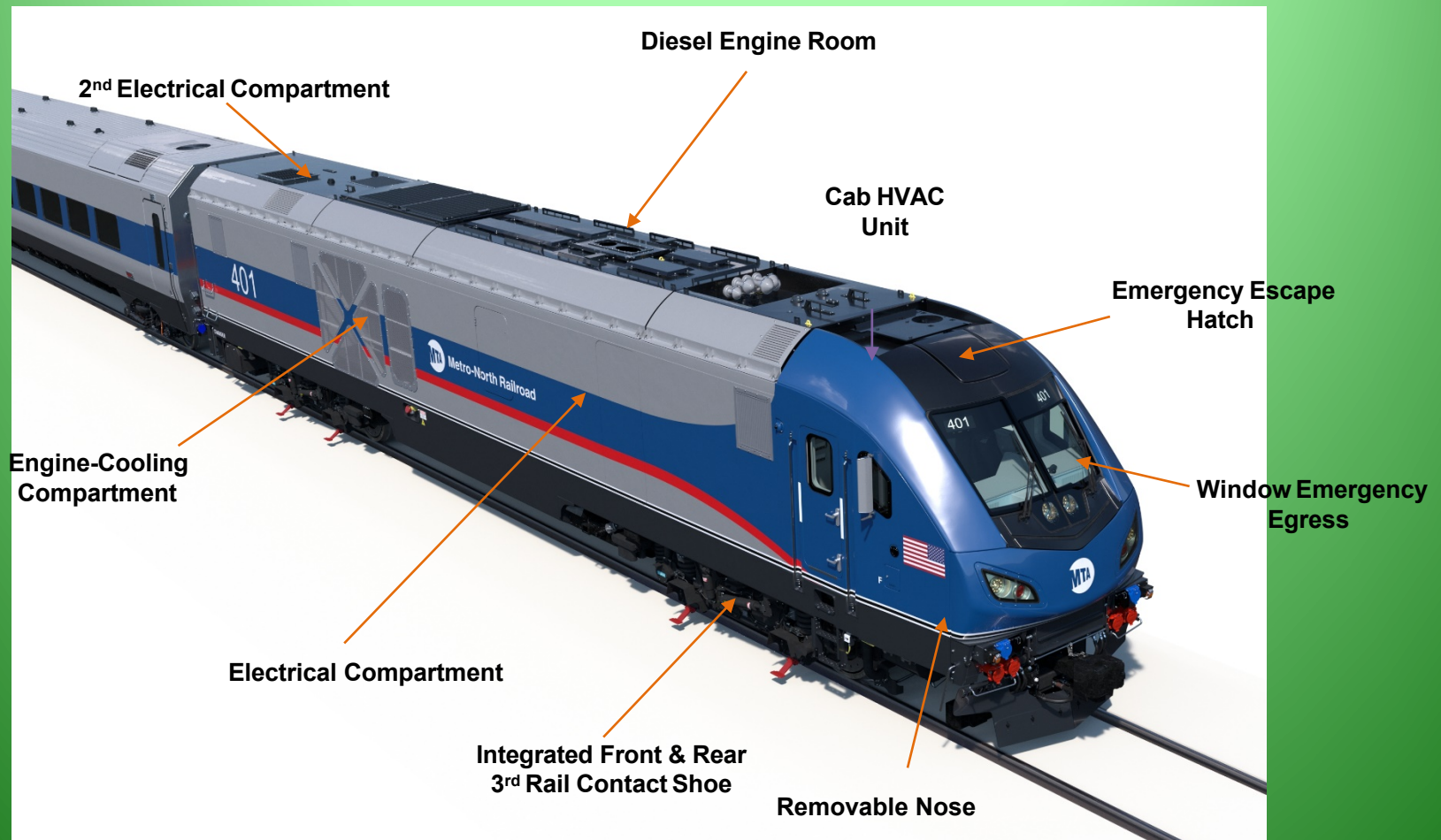
Key Features - Layout

The Specification aimed for the following benefits:

- Reduced life-cycle costs: through maintenance-friendly designs and ease of access for inspections and repairs
- Increased fleet availability: through reduced downtime for repairs and maintenance
- Crew access walkways: Improved walkway widths for crew access
- Modular design: Easy removal of roof structure for replacement of major components
- Higher visibility throughout compartments: Bright compartment lighting for safety and repairs



Key Features – Layout (MNR)



Key Features - Cab

The Cab section of the specification focuses on :

- Improve Safety: Cab safety cage and proven PTC system integration
- Comfortable: have buy-in from “Brotherhood of Locomotive Engineers” for ergonomic cab design (via tour of IDOT locomotive)
- Reduce Life-cycle costs through maintenance-friendly designs and optimal access
- Quieter Locomotive: Significant noise reduction for the operating crew and passengers at the station
- Improved Visibility: Wider FRA compliant windshields, providing better visibility and protection



Cab General Arrangement



Differences – LIRR

- Carbody Safety Appliances – with Modifications as needed for LIRR clearance
- Brake Manifold Layout - modified if needed to meet brake performance criteria
- 3rd Rail Collector - modified for LIRR (over running vs under running)
- Comm/MU Receptacles – 36-pin receptacles required for LIRR
- Horn - pneumatic horn control valve on engineer's console per BLE
- Paint and style



Differences – NYDOT

Largely mirroring Amtrak ALC-42 requirements:

- Seat Group - same as Amtrak ALC-42
- HEP/Comm/MU Receptacles – same as Amtrak ALC-42
- Cab Controls –modified camera system and alert sounds
- ACSES Unit – same as Amtrak ALC-42
- Paint and style



Schedule

- Expected Notice of Award (NOA) – March 2021
- Pilot locomotive to be delivered within 50 months from NOA
 - Goals in Contract to accelerate this schedule
- Delivery schedule for the nineteen (19) base locomotives is expected to be completed within 66 months from Notice of Award (NOA)
- Base warranty period 2-years

